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American University Of The Middle East

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Creating a successful strength training program

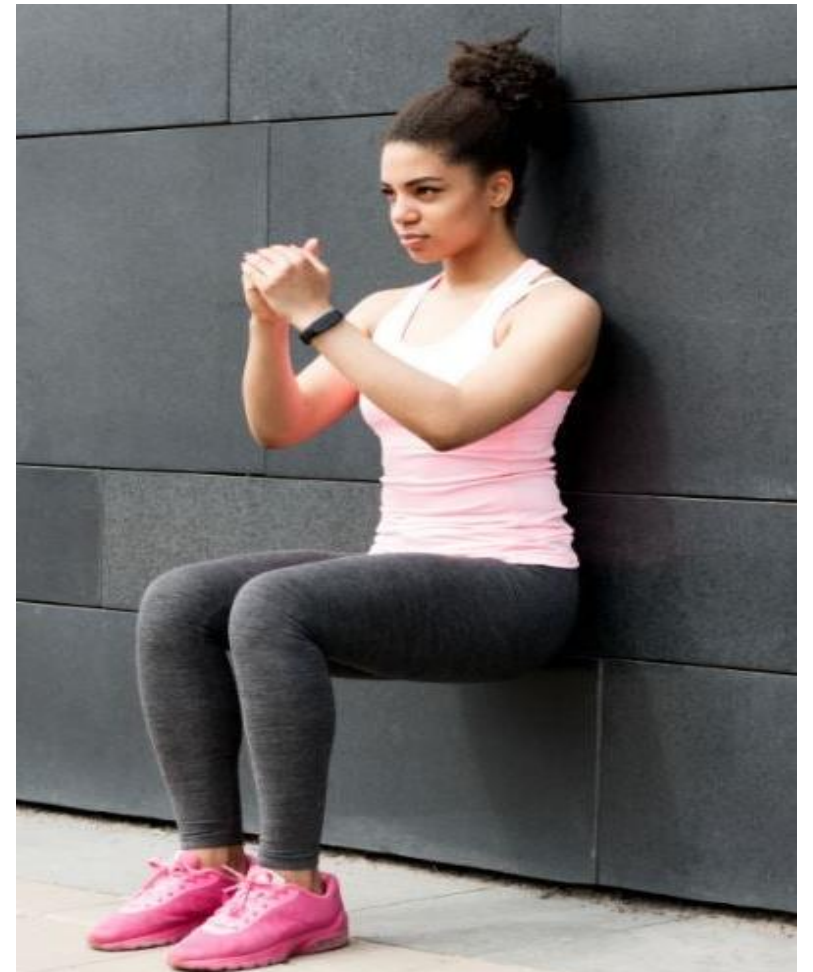
- When the muscles are stressed by a greater load than they are used to, they adapt and improve their function.
- The type of adaptation that occurs depends on the type of stress applied.



Static Exercises – Also called Isometric exercises –

- Causes a muscle contraction without changing the length of the muscle or the angle in the joint on which the muscle acts (no movement).
- Static exercises are particularly important for developing stiff core or torso muscles that support the spine and provide a firm foundation for whole body motions.
- During almost all movements some muscles can contract statically to support the skeleton so other muscles can contract dynamically.
The core muscles also contract statically during dynamic exercises, such as squats, lunges, and overhead presses.
- For maximum strength gains, hold the isometric contraction maximally for 6 seconds; 2-10 repetitions.
Ex: when you throw something, hit a ball, or ski, the core muscles in the abdomen and back stabilize the spine.


Static versus Dynamic Strength Training Exercises



Dynamic Exercises – Also called isotonic exercise –

- causes a muscle contraction and a change in the length of the muscle and the angle of the joint.
- Dynamic exercises are the most popular type of exercises for increasing muscle strength and seem to be most valuable for developing strength that can be transferred to other forms of physical activity.
- They can be performed with weight machines, free weights, or a person's own body weight (as in pull-ups or push-ups).





Dynamic Exercises –

There are two kinds of dynamic muscle contractions:

- ***A concentric muscle contraction*** (also called a miometric contraction) occurs when the muscle applies enough force to overcome resistance and shortens as it contracts.
- ***An eccentric muscle contraction*** (also called a pliometric contraction) occurs when the resistance is greater than the force applied by the muscle and the muscle lengthens as it contracts.

For example, in an arm curl, the biceps muscle works concentrically as the weight is raised toward the shoulder and eccentrically as the weight is lowered.

Comparing Static and Dynamic Exercise

- **Static exercise** require no equipment, so they can be done virtually anywhere. They build strength rapidly and are useful for rehabilitation of joints after injury or surgery and for stabilizing joints in the shoulder and spine. On the other hand, they have to be performed at several different angles for each joint to improve strength throughout its entire range of motion.
- **Dynamic exercises** can be performed without equipment (calisthenics) or with equipment (weight training). Not only are they excellent for building muscular strength and endurance, but they also tend to build strength through a joint's full range of motion. Most people develop muscular strength and endurance using dynamic exercises. Ultimately, however, the type of exercise a person chooses depends on individual goals, preferences, and access to equipment.

Terms

- **Concentric muscle contraction** A dynamic contraction in which the muscle gets shorter as it contracts; also called a miometric contraction.
- **Eccentric muscle contraction** A dynamic contraction in which the muscle lengthens as it contracts; also called a pliometric contraction.
- **Constant resistance exercise** A type of dynamic exercise that uses a constant load throughout a joint's full range of motion.
- **Variable resistance exercise** A type of dynamic exercise that uses a changing load, providing a maximum load at the strongest point in the affected joint's range of motion.
- **Eccentric (plyometric) loading** Loading the muscle while it is lengthening; sometimes called negatives
- **Plyometrics** Rapid stretching of a muscle group that is undergoing eccentric stress (that is, the muscle is exerting force while it lengthens), followed by a rapid concentric contraction.
- **Speed loading** Moving a load as rapidly as possible

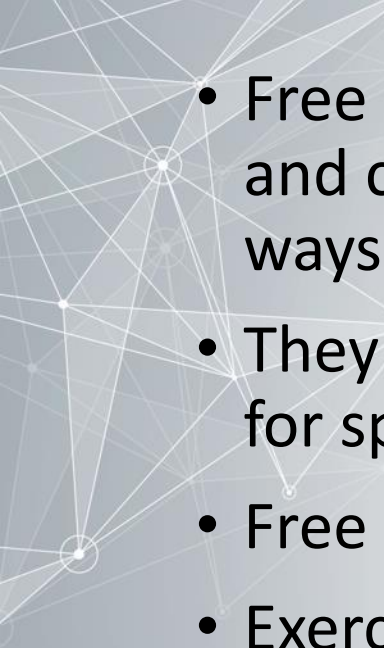
Terms

- **Isokinetic exercise** A type of dynamic exercise that provides variable resistance to a movement, so that the movement occurs at a constant speed no matter how much effort is exerted.
- **Repetitions** the number of times an exercise is performed during one set.
- **Isometric (static) exercise** Exercise causing a muscle contraction without a change in the muscle's length or a joint's angle.
- **Isotonic (dynamic) exercise** exercise causing a muscle contraction and a change in the muscle's length.
- **Spotter** a person who assists with a weight-training exercise done with free weights.
- **Blood flow restriction training** Exercising with restricted blood flow to working muscles. Also called TERMS Kaatsu training.
- **Set** A group of repetitions followed by a rest period
- **Hinge** A powerful movement in the lower body involving first hip flexion and then hip extension; the hip hinge maximizes the use of the gluteal and quadriceps muscles while maintaining a stiff core to keep the spine in a neutral position.



Weight Machines, Free Weights, and Body Weights, and Body Weight Exercises

- Muscles get stronger when made to work against resistance.
- Resistance can be provided by free weights, body weight, or exercise machines.
- Many people prefer machines because they are safe, convenient, and easy to use.
- You just set the resistance, sit down at the machine, and start working.
- Machines make it easy to isolate and work specific muscles.
- You don't need a **spotter** -someone who stands by to assist when free weights are used- and you don't have to worry about dropping a weight on yourself.
- Many machines provide support for the back.

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- Free weights, such as barbells and kettlebells, require more care, balance, and coordination to use than machines, but they strengthen your body in ways that are more adaptable to real life.
 - They are also more popular with athletes for developing functional strength for sports, especially sports that require a great deal of strength.
 - Free weights are widely available, inexpensive, and convenient for home use.
 - Exercises that use body weight, elastic bands, rocks as resistance enable you to do workouts at home.
 - You can purchase elastic bands at sporting good stores or any home improvement or hardware store.
 - A basic principle of resistance exercise is to “train movements and not muscles.”
 - This means that you can overload the body in everyday movements like sitting and standing from a chair, climbing a fence, getting out of a swimming pool without a ladder, and standing after lying on the ground.

Other Training Methods and Types of Equipment

You don't need a fitness center or expensive equipment to strength train. If you prefer to train at home or like low-cost alternatives, consider the following options.

Resistance Bands

Resistance or exercise bands are elastic strips or tubes of rubber material that are inexpensive, light-weight, and portable. They are available in a variety of styles and levels of resistance. Some are sold with instructional guides or online videos, and classes may be offered at fitness centers.

Many free-weight exercises can be adapted for resistance bands. For example, you can do biceps curls by standing on the center of the band and holding one end of the band in each hand; the band provides resistance when you stretch it to perform the curl.



Exercise (Stability) Balls

The exercise s stability ball is an extra-large inflatable ball. It was originally developed for use in physical therapy but has become a popular piece of exercise equipment for use in the home or gym. It Can be used to work the entire body, but it is particularly effective for working the core stabilizing muscles in the abdomen, chest, and back- muscles that are important for preventing back problems. The ball's instability forces the exerciser to use the stability muscles to balance the body, even when just sitting on the ball. The "stir-the-pot" exercise -a plank position with elbows resting on the ball, which is then moved in small circles-is an example of a core-building exercise that uses the stability ball.





You can incorporate a stability ball into a typical workout in many ways.

For example, you can perform curl-ups while lying on a ball instead of on the floor. Lying facedown across a ball provides different leverage points for push-ups.

A variety of resistance training exercises can be performed on a stability ball, but experts recommend using dumbbells rather than barbells when lifting weights on a ball.

When selecting a ball, make sure your thighs are parallel to the ground when you sit on it; if you are a beginner or have back problems, choose a larger ball so that your thighs are at an angle, with hips higher than knees.

Beginners should use caution until they feel comfortable with the movements and take care to avoid poor form due to fatigue.

Table 4.2

The Pros and Cons of Stability Balls

PROS

Stability balls activate muscle and nerve groups that might not otherwise get involved in a particular exercise.

Some exercises, such as the stir-the-pot exercise, can enhance the stability of supporting joints throughout the body.

Stability balls can be useful for some older adults because they require balance and can enhance overall stability.

Stability balls add variety and challenge to a workout.

CONS

Muscle activation when training on unstable surfaces is less effective than traditional training for building strength in muscle groups responsible for a movement or in trunk-stabilizing muscle groups.

Some exercises (such as curl-ups) can be more stressful to certain joints and muscles and promote back or shoulder pain in susceptible people.

Falling off an unstable surface, especially while holding weights, can cause serious injury.



Pilates

Pilates (pil LAH teez) was developed by German gymnast and boxer Joseph Pilates early in the 20th century.

Pilates focuses on strengthening and stretching the core muscles in the back, abdomen, and buttocks to create a solid base of support for whole-body movement,; the emphasis is on concentration, control. movement flow and breathing.

Pilates often makes use of specially designed resistance training devices, although some classes feature just mat or floor work.

Mat exercises can be done at home, but because there are hundreds of Pilates exercises, some of them strenuous, it is best to begin with some qualified instruction.

Medicine Balls, Suspension Training, Stones, and Carrying Exercises

Almost anything that provides resistance to movement will develop strength. *Rubber medicine balls* weighing up to 50 pounds can be used for a variety of functional movements, such as squats and overhead throws.



Suspension training (e.g., TRX system) uses body weight as the resistance in exercises using ropes or cords attached to a hook, bar, door jam, or sturdy tree branch.

You can train with a stone found in your backyard or local riverbank in performing exercises such as squats, presses, and carries. Walking while carrying dumbbells, farmer's bars, or heavy stones is an easy and effective way to develop whole-body strength. Carrying exercises are particularly useful for building core muscle fitness.





Power-Based Conditioning Programs

This type of training combines aerobics, weight training, gymnastics, and high-intensity interval training.

Programs such as CrossFit and Gym Jones employ different exercises every day.

More traditional circuit training methods often use the same exercises set up in series.

Blood Flow Restriction Resistance Training

Blood flow restriction training involves exercising with restricted blood flow to the working muscles.

Blood flow restriction during low-intensity weight training promotes muscle hypertrophy because it creates severe metabolic stress that stimulates muscle protein synthesis and hypertrophy.

Although blood flow restriction might be effective for injury rehabilitation, it is less effective than traditional training and may cause severe muscle injury in some people.

Applying the FITT-VP Principle: Selecting Exercises and Putting Together a Program

A complete weight training program works all the major muscle groups. It usually takes about 8-10 different exercises to get a complete full-body workout.

Use the FITT-VP principle - frequency, intensity, time, type, volume, and progression - set the parameters of your program.

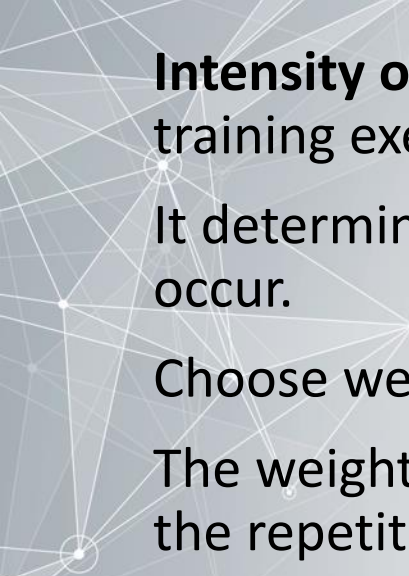
Frequency of Exercise For general fitness, the American College of Sports Medicine (ACSM) recommends a frequency of at least two nonconsecutive days per week for weight training.

Allow your muscles at least one day of rest between workouts; if you train too often, your muscles won't be able to work with enough intensity to improve their fitness, and soreness and injury are more likely to result.

One technique, called *split routines*, works different muscle groups on alternate days.

For example, work your arms and upper body one day, work your lower body the next day, and then return to upper-body exercises on the third day.

Recent studies found, however, that training the same muscle groups three times a week was effective than split routines.



Intensity of Exercise: Amount of Resistance the amount of weight (resistance) you lift in weight training exercises is equivalent to intensity in cardiorespiratory endurance training.

It determines how your body will adapt to weight training and how quickly these adaptations will occur.

Choose weights based on your current level of muscular fitness and your fitness goals.

The weight should be heavy enough to fatigue your muscles but light enough for you to complete the repetitions with good form.

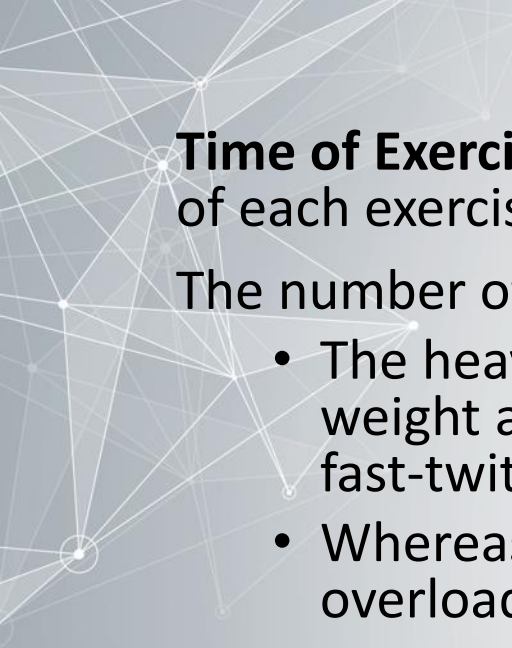
To build strength rapidly, you should lift weights as heavy as 80% of your maximum capacity (1 RM).

If you're more interested in building endurance, choose a lighter weight (perhaps 40-60% of 1 RM), and do more repetitions.

For example, if your maximum capacity for the leg press is 160 pounds, you might lift 130 pounds to build strength and 80 pounds with more repetitions to build endurance.

For a general fitness program to develop both muscular strength and endurance, choose a weight in the middle of this range, perhaps 70% of 1 RM.

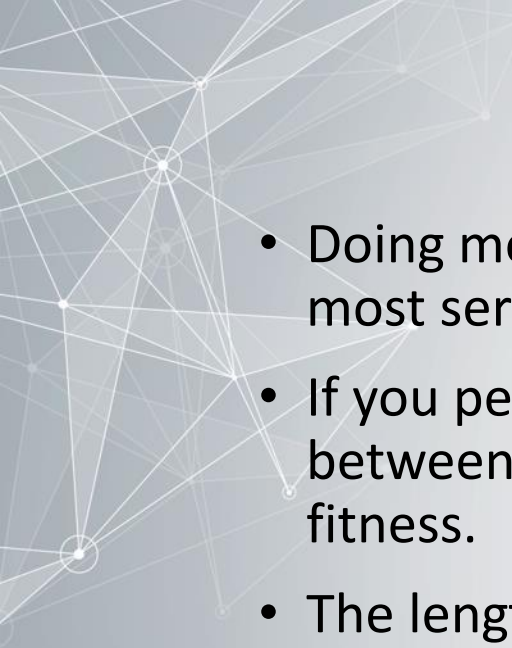
Or you can create a program that includes both higher-intensity exercise (80% of 1 RM for 8-10 repetitions) and lower-intensity exercise (60% of 1 RM for 15-20 repetitions); this routine will develop both fast-twitch and slow-twitch muscle fibers.

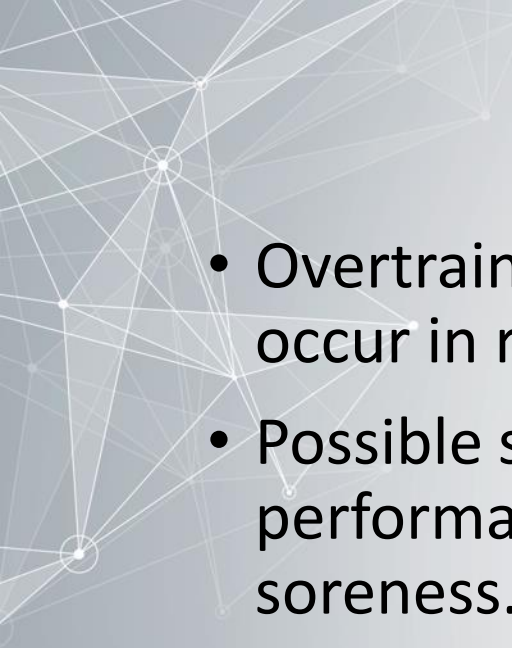


Time of Exercise: Repetitions and Sets To improve fitness, you must do enough repetitions of each exercise to fatigue your muscles.

The number of repetitions needed to cause fatigue depends on the amount of resistance:

- The heavier the weight, the fewer repetitions to reach fatigue. In general, a heavy weight and a low number of repetitions (1-5) build strength and overload primarily fast-twitch fibers
- Whereas a light weight and a high number of repetitions (15-20) build endurance and overload primarily slow-twitch fibers.
- For a general fitness program to build both strength and endurance, try to do about 8-12 repetitions of each exercise; a few exercises, such as abdominal crunches and calf raises, may require more.
- To avoid injury, older (approximately age 50-60 and above) and frailer people should perform more repetitions (10-15) using a lighter weight.
- In weight training, a *set* refers to a group of repetitions of an exercise followed by a rest period.
- To develop strength and endurance for general fitness, you can make gains doing a single set of each exercise, provided you use enough resistance to fatigue your muscles. (You should just barely be able to complete 8-12 repetitions –using good form- for each exercise.)

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- Doing more than one set of each exercise will increase strength development; most serious weight trainers do at least 3 sets of each exercise.
 - If you perform more than one set of an exercise, you need to rest long enough between sets to allow your muscles to work with enough intensity to increase fitness.
 - The length of the rest interval depends on the amount of resistance.
 - In a program to develop a combination of strength and endurance for wellness, a rest period of 1-3 minutes between sets is appropriate.
 - If you are lifting heavier loads to build strength, rest 3-5 minutes between sets.
 - You can save time in your workouts by alternating sets of different exercises. One muscle group can rest between sets while you work on another group.

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- Overtraining -doing more exercise than your body can recover from- can occur in response to heavy resistance training.
 - Possible signs of overtraining include lack of progress or decreased performance, chronic fatigue, decreased coordination, and chronic muscle soreness.
 - The best remedy for overtraining is rest; add more days of recovery between workouts. Training.
 - With extra rest, chances are you'll be refreshed and ready to train again.
 - Adding variety to your program, can also help you avoid overtraining with resistance exercise.

Type or Mode of Exercise For overall fitness, you need to include exercises for your neck, upper back, shoulders, arms, chest, abdomen, lower back, thighs, buttocks, and calves- about 8-10 exercises in all.

If you are also training for a particular sport, include exercises to strengthen the muscles important for optimal performance and the muscles most likely to be injured.

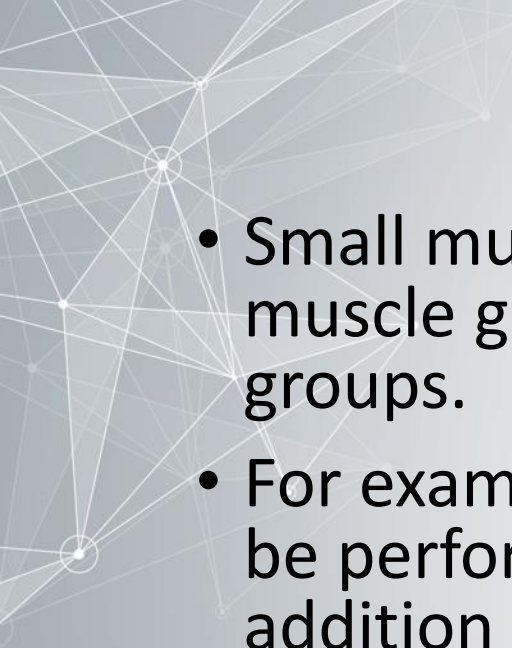
- **Balance exercises for opposing muscle groups** it is important to balance exercises between antagonistic muscle groups. When a muscle contracts, the opposing muscle must relax.

Whenever you do an exercise that moves a joint in one direction, also select an exercise that works the joint in one direction.

For example, if you do knee extensions to develop the muscles on the front of your thighs, also do leg curls to develop the antagonistic muscles on the back of your thighs.

- **Setting order of exercises** the order of exercises can also be important. Do exercises for large-muscle groups such as the chest and shoulders before you do exercises that use small muscle groups such as the upper and lower arms.

Alternate pushing and pulling exercises. This allows for more effective overload of the larger, more powerful muscle groups.

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- Small muscle groups fatigue more easily than larger ones, and small muscle groups fatigue limits your capacity to overload large-muscle groups.
 - For example, lateral raises, which work the shoulder muscles, should be performed after bench presses, which work the chest and arms in addition to the shoulders.
 - If you fatigue your shoulder muscles by doing lateral raises first, you won't be able to lift as much weight and effectively fatigue all the key muscle groups used during the bench press.
 - Also, order exercises so that you work opposing muscle groups in sequence, one after the other. For example, follow biceps curls, which work the biceps, with triceps extensions, which exercise the triceps—the antagonistic muscle to the biceps.




Volume is the product of frequency, intensity, and time.

For weight training, the volume of a specific exercise during a workout would be the amount of weight lifted multiplied by the number of reps and sets.

Choose a training volume that promotes progress and that you will do consistently.

And change the components from time to time – that is, increase the weight on some days and the sets and reps on other days.

Changing the training volume prevents the body from adapting to exercise stress and results in more consistent improvements in fitness.



Progression Training intensity is the most important factor promoting improvements in strength and power. You will progress rapidly when you begin training, but progress slows as you become more fit.

Set fitness goals and progress systematically by adding weight or sets as you gain strength and power.

After achieving your goal, maintain strength by training one to 3 times per week.

The Warm-Up and Cool-Down

- As with cardiorespiratory endurance exercise, you should warm up before every weight training session and cool down afterward.
- You should do both a general warm-up -several minutes of walking or easy jogging and a warm-up for the weight training exercises you plan to perform.
- For example, if you plan to do one or more sets of 10 repetitions of bench presses with 125 pounds, you might do one set of 10 repetitions with 50 pounds as a warm-up.
- Do similar warm-up exercises for each exercise in your program.
- To cool down, perform 5-10 minutes of increasingly less intense aerobic and muscular endurance activity so that your body transitions to a resting state.
- Although controversial, a few studies have suggested that including a period of post-exercise stretching may help prevent muscle soreness; warmed-up muscles and joints make the cool-down period a particularly good time to work on flexibility.

Warm-up 5–10 minutes	Strength training exercises for major muscle groups (8–10 exercises)	Cool-down 5–10 minutes	
Start	Sample program		
	<i>Exercise</i>		<i>Muscle group(s) developed</i>
	Bench press		Chest, shoulders, triceps
	Lat-Pulls		Lats, biceps
	Shoulder press		Shoulders, trapezius, triceps
	Upright rowing		Deltoids, trapezius
	Biceps curls		Biceps
	Lateral raises		Shoulders
	Squats		Gluteals, quadriceps
	Heel raises		Calves
	McGill curl-ups		Abdominals
Spine extensions	Low- and mid-back spine extensors		
Side bridges	Obliques, quadratus lumborum		
		Stop	

Frequency: 2–3 nonconsecutive days per week

Intensity/resistance: Use weights heavy enough to cause muscle fatigue when exercises are performed with good form for the selected number of repetitions

Time: repetitions: 8–12 of each exercise (10–15 with a lower weight for people over age 50–60); **sets:** 1 (doing more than 1 set per exercise may result in faster and greater strength gains); rest 1–2 minutes between exercises.

Type of activity: 8–10 strength training exercises that focus on major muscle groups

Volume: An example might be 3 sets of 8-12 repetitions of each exercise with 1 minute rest between sets.

Progression: As you progress, add weight according to the “two-for-two” rule: When you can perform two additional repetitions with a given weight on two consecutive training sessions, increase the load. For example, if your target is to perform 8–10 repetitions per exercise, and you performed 12 repetitions in your previous two workouts, it would be appropriate to increase your load.

FIGURE 4.4 The FITT-VP principle for a strength training workout.



Getting Started and Making Progress

The first few sessions of weight training should be devoted to learning the movements and allowing your nervous system to practice communicating with your muscles so that you can develop strength effectively.

To start, choose a weight that you can move easily through 8-12 repetitions, do only one set of each exercise, and rest 1-2 minutes between exercises.

Gradually add weight and (if you want) sets to your program over the first few weeks until you are doing one to three sets of 8-12 repetitions of each exercise.

If adding weight means you can do only 7 or 8 repetitions, stay with that weight until you can again complete 12 repetitions per set.

If you can do only 4-6 repetitions after adding weight, or if you can't maintain good form, you've added too much and should take some off.

Getting Started and Making Progress

You can add more resistance in large-muscle exercises, such as squats and bench presses, than you can in small-muscle exercises, such as curls. For example, when you can complete 12 repetitions of squats with good form, you may be able to add 10-20 pounds of additional resistance; for curls, by contrast, you might add only 3-5 pounds.

As a general guideline, try increases of approximately 5%, which is half a pound of additional weight for each 10 pounds you are currently lifting.

You can expect to improve rapidly during the first 6-10 weeks of training—a 10-30% increase in the amount of weight lifted. Gains will then come more slowly. Your rate of improvement will depend on how hard you work and how your body responds to resistance training.

Factors such as age, gender, motivation, and heredity also will affect your progress. After achieve the level of strength and muscularity you no want, you can monitor the progress of your program by recording the amount of resistance and the number of repetitions and sets you perform on a workout card.

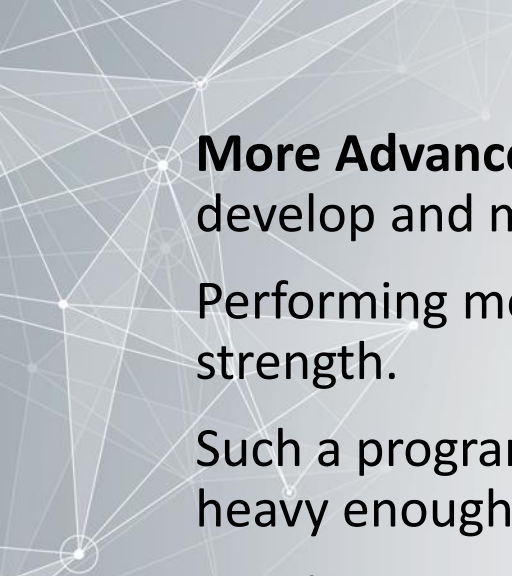
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Exercise	Wt	Sets	Reps or Secs
Bench press	45	2	10
Lat pulls	40	2	10
Shoulder press	25	2	10
Upright rowing	10	2	10
Biceps curls	15	2	8
Lateral raise	5	2	12
Squats	45	2	12
Heel raises	45	2	11
McGill curl-ups	0	2	25
Spine extensions	0	2	10
Side bridge	0	2	65

overview Exercises Workouts More

FIGURE 4.5 A sample workout log for a general fitness strength training program.



More Advanced Strength Training Programs The program just described is sufficient to develop and maintain muscular strength and endurance for general fitness.

Performing more sets and fewer repetitions with a heavier load will cause greater increases in strength.

Such a program might include three to five sets of 4-6 repetitions each; the load should be heavy enough to cause fatigue with the smaller number of repetitions.

Rest long enough after a set (3-5 minutes) to allow your muscles to recover and work intensely during the next set.

Train purposefully when lifting heavy weights-that is, make an effort to train explosively, no matter how much weight you are lifting. This increases the capacity of the nervous system to recruit motor units and maximize strength and power output.

Experienced weight trainers often practice some form of cycle training, also called periodization, in which the exercises, number of sets and repetitions, and intensity vary within a workout and/or between workouts. For example, you might do a days than others. You might also vary the exercises you perform for particular muscle groups.

For more detailed information on these more advanced training techniques, consult a certified strength coach. If you decide to adopt a more advanced training regimen, start off slowly to give your body a chance to adjust and to minimize the risk of injury.



Weight Training Safety Injuries happen in weight training.

Maximum physical effort, elaborate machinery, rapid movements, and heavy weights can combine to make the weight room a dangerous place if proper precautions aren't taken.

To help ensure that your workouts are safe and productive, follow the guidelines in the box "Safe Weight



Use Proper Lifting Technique

Every exercise has a proper technique that is important for obtaining maximum benefits and preventing injury.

Your instructor or weight room attendant can help explain the specific techniques for different exercises and weight machines.

Perform exercises smoothly and with good form.

Lift or push the weight forcefully during the active phase of the lift and then lower it with control.

Perform all lifts through the full range of motion and strive to maintain a neutral spine position during each exercise

Use Spotters and Collars with Free Weights

- Spotters are necessary when an exercise has potential for danger, a weight that is out of control or falls can cause a serious injury.
 - A spotter can assist you if you cannot complete a lift or if the weight tilts.
 - A spotter can also help you move a weight into position before a lift and provide help or additional resistance during a lift.
 - Spotting requires practice and coordination between the lifter and spotter.
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- Collars are devices that secure weight disks or plates to a barbell or dumbbell; they may have a coiled spring mechanism or a clamp or bolt.
 - Although people lift weights without collars, doing so is dangerous. It is easy to lose your balance or to raise one side of the weight faster than the other.
 - Without collars, the weights can slip off and crash to the floor. If you use spring clip collars, make sure they fit the bar tightly.
 - Worn spring collars can slide off the bar easily.



Be Alert for Injuries

- Report any obvious muscle or joint injuries to your instructor or physician and stop exercising the affected area.
- Training with an injured joint or muscle can lead to a more serious injury.
- Make sure you get the necessary first aid.
- Even minor injuries heal faster if you use the R-I-C-E principle of treating injuries.
- Consult a physician if you have any unusual symptoms during exercise or if you're uncertain whether weight training is a proper activity for you.
- Weight training can aggravate conditions such as heart disease and high blood pressure.
- Immediately report symptoms such as headaches; dizziness; labored breathing; numbness; vision disturbances; and chest, neck, or arm pain.
- Pushing muscles to failure can sometimes result in rhabdomyolysis (destruction of muscle cells), which can cause serious illness or even death.

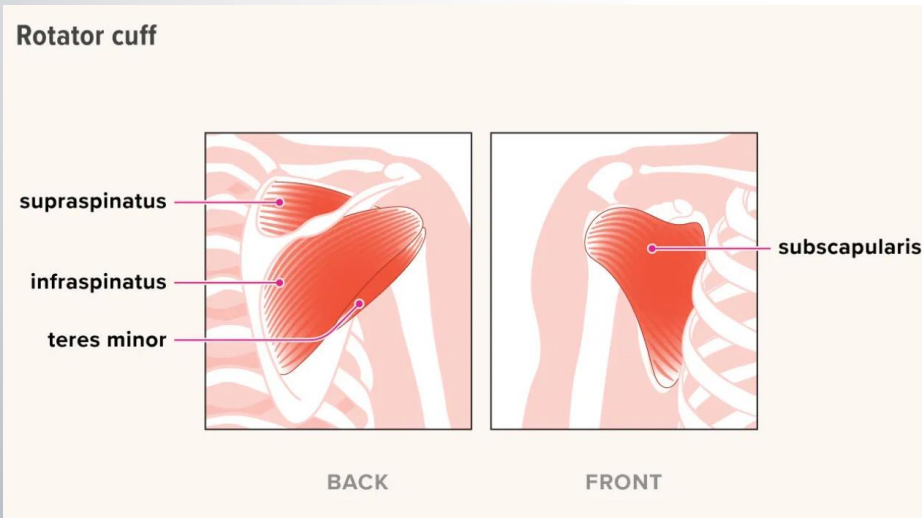
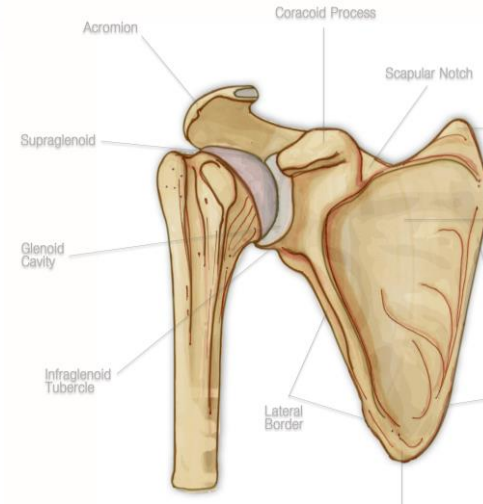


Muscle groups

- **Shoulders** (Deltoids, Rhomboids, Rotator cuff: supraspinatus, infraspinatus, teres minor, and subscapularis)
- **Arms** (Biceps, brachialis, triceps)
- **Chest** (Pectoralis major and minor)
- **Back** (upper: Trapezius, Rhomboids, latissimus dorsi, Lower: Erector spinae, Quadratus lumborum)
- **ABS** (Rectus abdominis, obliques, transversus abdominis)
- **Legs** (Quadriceps, hamstrings, gluteals)
- **Calves** (gastrocnemius, soleus)

Shoulders:

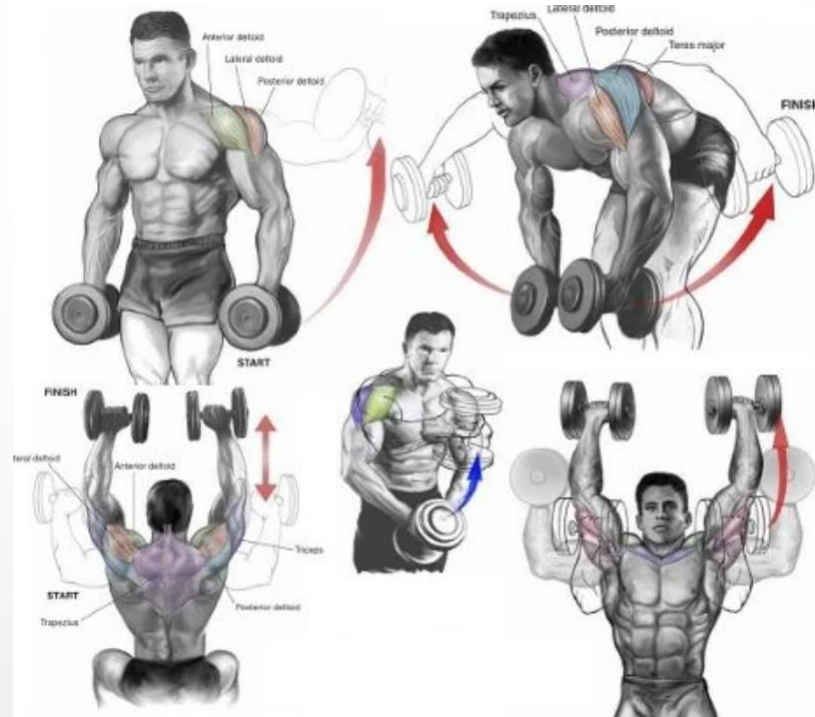
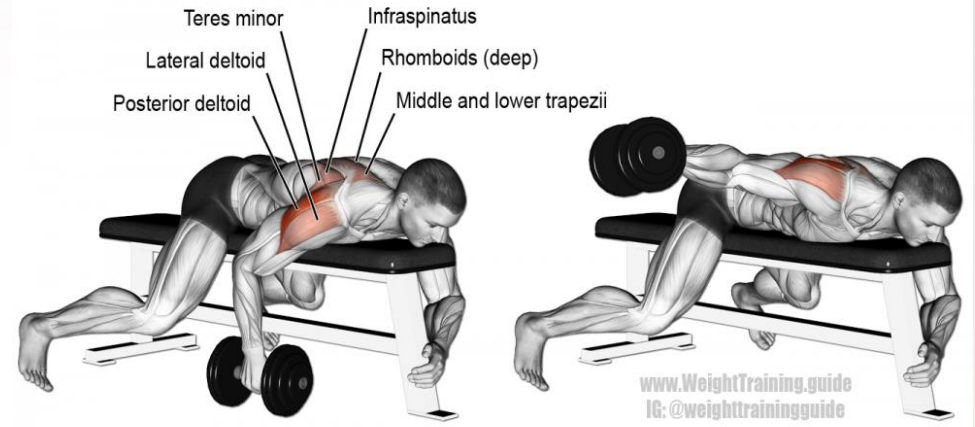
- Deltoids: to the front – flexion; to the side – abduction of the shoulder
- Rhomboids: Draws scapula superomedial, Rotates glenoid cavity inferiorly
- Rotator cuff (supraspinatus - Abduction, infraspinatus - external rotation of the arm, teres minor - external rotation of the arm, and subscapularis - internal rotation)



Exercises:

- Burpees with a push-up
- Spine extension
- Thrusters
- Front plank
- Push-ups
- Bench press
- Shoulder press
- Upright rowing
- Lateral raise
- Kettlebell one-arm snatch
- Overhead press
- Lateral raise
- Assisted dip

Shoulders





Arms:

- Biceps – elbow flexion, shoulder flexion
- Brachialis - elbow flexion
- Triceps – elbow extension

Exercises:

- Thrusters
- Pushups
- Bench press
- Pull-up
- Shoulder press
- Upright rowing
- Biceps curl
- Lat pull
- Overhead press
- Pullover
- Triceps extension
- Assisted dip

Arms





Chest:

- Pectoralis major and minor – flexion, horizontal flexion (adduction) and rotation of the shoulder

Exercises:

Burpees with a pushup

Thrusters

Front plank

Pushups

Bench press

Pullover

Assisted dip

Chest





Upper Back:

- Trapezius - elevates, depresses, rotates, and retracts the scapula.
- Rhomboids
- latissimus dorsi - **shoulder extension and horizontal extension (abduction)**

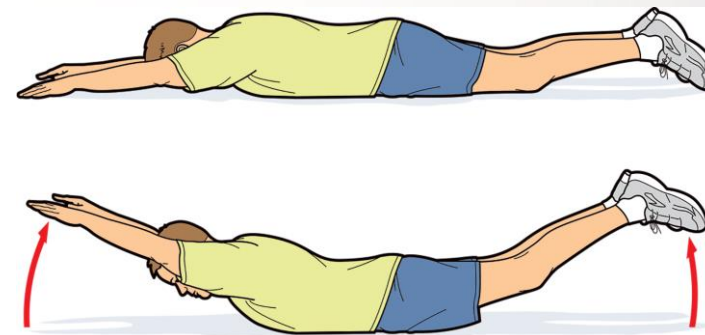
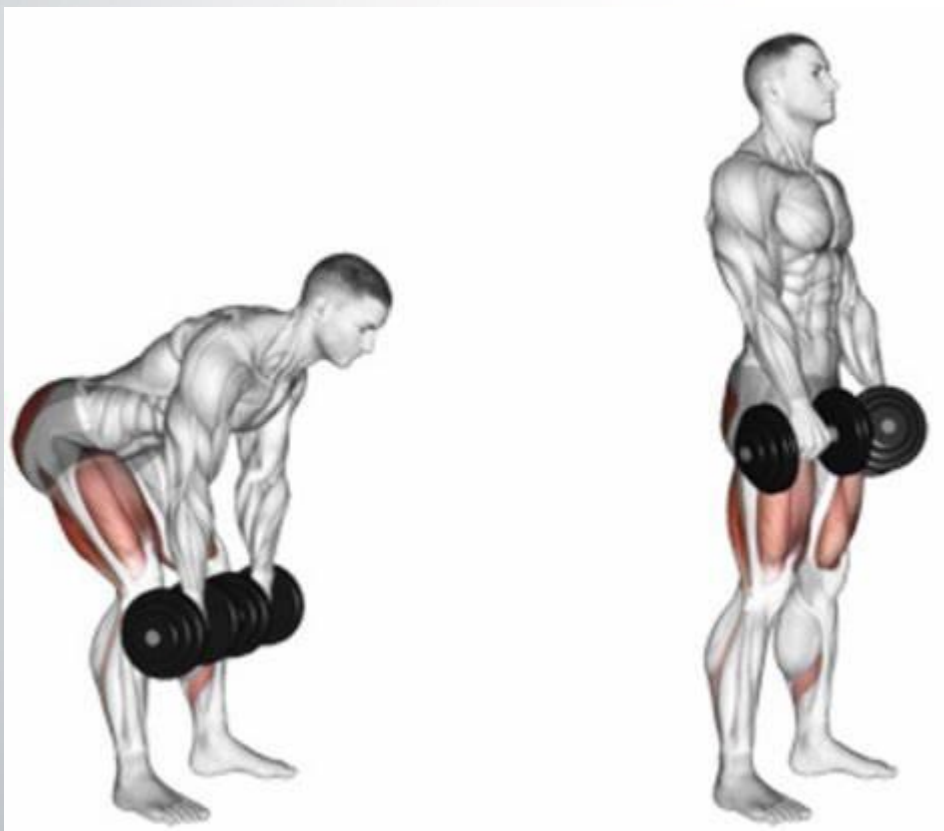
Lower back:

- Erector spinae - extension and lateral flexion of spine
- Quadratus lumborum – extension and lateral flexion of trunk

Upper back Exercises:

- Front plank
- Pull-up
- Shoulder press
- Upright rowing
- Kettlebell swing
- Lat pull
- Assisted pull-up
- Overhead press
- Pullover
- Lateral raise

Back





ABS:

- Rectus abdominis (the six pack) - Flexing the spine
- Obliques – trunk lateral flexion
- Transversus abdominis - Trunk rotation

Exercises:

- Curl-up
- Isometric side bridge
- Front plank
- Kettlebell carry
- pullover

ABS



10 crunches



10 air bike crunches



10 sitting twists



10-count raised leg hold



10-count plank hold



10 plank leg raises



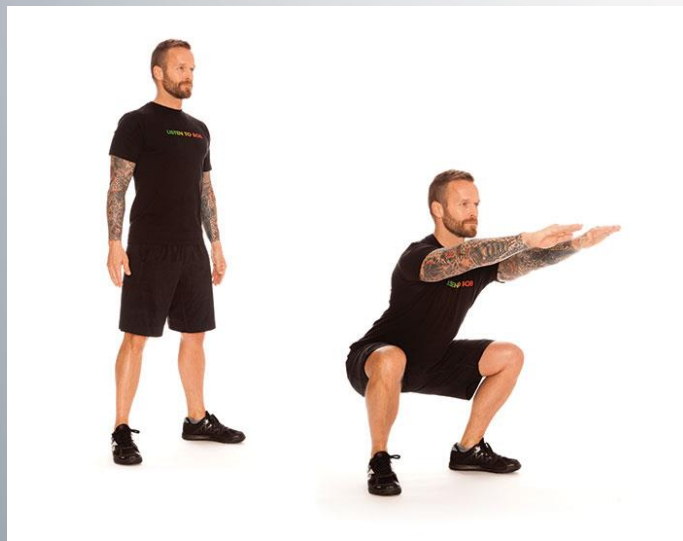
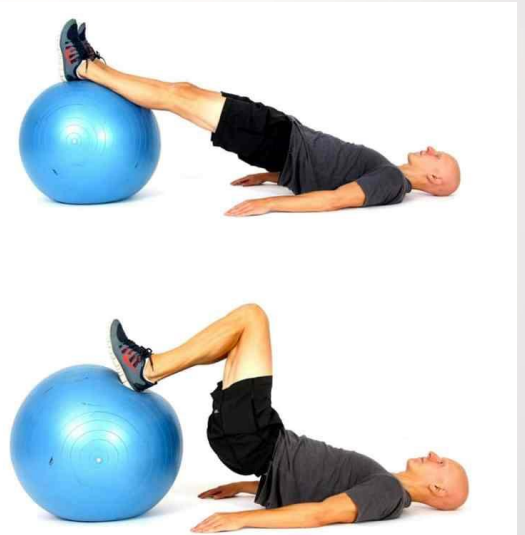
Legs:

- Quadriceps – knee extension
- Hamstrings – knee flexion
- Gluteals – Extension, abduction, internal and external rotation of the hip

Exercises:

- Squats
- Lunges
- Burpees with a push-up
- Spine extension
- Thrusters
- Kettlebell swing
- Kettlebell one-arm snatch
- Kettlebell carry
- Leg press
- Leg extension
- Seated leg curl
- Front plank

Legs





Calves:

- Gastrocnemius – plantar flexion and knee flexion
- Soleus – plantar flexion

Exercises:

- Squats
- Lunges
- Burpees with a pushup
- Thrusters
- Heel raise
- Seated leg curl

Calves

